

Claims:

What we claim is:

- 5 1. A server comprising:
- a storage device for storing an object data structure having a plurality of
- entries defining attributes of an object, the plurality of attributes apportioned into
- general entries and variable entries, the general entries including a list of members
- having access to the object and the variable entries including at least one item of
- 10 persistent information associated with the object; and
- broadcast logic for broadcasting changes to the object data structure to the at
- least one member having access to the object.
2. The server of claim 1, wherein the storage device stores a plurality of object
- 15 data structures associated with a plurality of objects, each one of the plurality
- of object data structures including a plurality of entries defining attributes of a
- corresponding one of the plurality of objects, the plurality of entries including
- a list of members having access to the associated object, the server further
- including:
- 20 a navigation logic including a relation database identifying
- relationships between different ones of the plurality of objects, the
- navigation logic also including logic for identifying a set of the plurality of

objects that are affected by a change to a data structure of a given object of the plurality of objects; and

wherein, the broadcasting logic further includes means for broadcasting a change to a data structure of the given object to members in the list of members of each object in the set of the plurality of objects identified by the navigation logic.

3. The server of claim 1, wherein the general entries of the object data structure are defined by the server, and the variable entries of the object data structure are defined and managed by any of the members on the list of members.

4. The server of claim 1, wherein the general entries include at least one of a unique id, name, author, creation time, modifier, modification time, reader, last access time, access control list with member and group objects, member status and subscription information pertinent to the object.

5. The server of claim 1, wherein a plurality of variable entries are associated with each object, and wherein each variable entry includes a name of an item of information associated with the entry, and a value of the item of information associated with the name.

6. The server of claim 1, wherein each variable entry includes access history information, associated with the item of information, the history information

including identifying members of the group having access to the object that have accessed the object.

7. The server of claim 6, wherein the access history information includes
5 information regarding a type of access of each member having accessed the object.

8. A method of sharing at least one item of information between a pair of clients
10 coupled to a server, the method including the steps of:

associating an object with the item of information, the object including a member list indicating clients having access to the item of information, the member list including the pair of clients, a name of the item of information
15 and a value of the information;

one of the clients of the pair of clients requesting modification of the object associated with the item of information;

selectively modifying the object in response to the request from the one of the clients; and

20 reflecting the modification of the object to the pair of clients.

9. The method of claim 8, wherein the step of reflecting the modification of the object to the pair of clients includes the step of responding to the one of the

clients of the pair that issued the request, and notifying the other client of the pair of the modification to the object.

10. The method of claim 8, wherein the method further includes the step of
5 identifying other clients that are interested in modification of the object by the one of the clients, and transmitting the modification of the object to the identified clients.

11. The method of claim 10, wherein the step of transmitting the modification of the object to the identified clients transmits the modification at different times
10 to different ones of the identified clients in response to a subscription level of the associated client.

12. The method of claim 8, wherein the object further includes a status entry for each member of the member list, the status entry identifying access privileges
15 of the associated member to the object, wherein the step of selectively modifying the object operates in response to the status entry of the one of the clients.

13. The method of claim 8, wherein the step of selectively modifying the object performs a function selected from a group consisting of creating the object,
20 reading the object, deleting the object, modifying a general or variable property of the object and modifying the member list of the object.

14. A client device, coupled to a server, the client device including:

a storage device for storing an object data structure having a plurality of entries defining attributes of an object, the plurality of attributes apportioned into general entries and variable entries, the general entries including a list of members having access to the object and the variable entries including at least one item of persistent information associated with the object; and

an application programming interface enabling the client to communicate with a server, including logic for requesting changes to the object data structure associated with the object, and logic for updating the contents of the object data structure in response to communication from the server.

15. The client device of claim 14, wherein the application programming interface comprises a state machine having a request state and an object update state.

16. A method, at a client device coupled to a server, for maintaining a copy of an object associated with an item of information, the item of information being accessed by other clients coupled to the server device, the object including a data structure storing the item of information, the method including the steps of:

forwarding a request to a coupled object server, the request for modifying at least one attribute of the object associated with the item of information;

receiving, from the server, an updated copy of at least a portion of the object, the updated copy of at least a portion of the object reflecting the requested modification; and

replacing a corresponding portion of the object at the client device

with the updated copy.

17. A system comprising:

5 a server comprising:

a storage device for storing an object data structure having a plurality of entries defining attributes of an object, the plurality of attributes apportioned into general entries and variable entries, the general entries including a list of members having access to the object and the variable entries including at least one item of persistent information associated with the object; and

10 broadcast logic for broadcasting changes to the object data structure to the at least one member having access to the object;

a pair of clients, coupled to the server, each client including:

15 a storage device for storing a copy of the object data structure including the at least one item of persistent information associated with the object; and

20 an application programming interface enabling the client to communicate with a server, including logic for requesting changes to the object data structure, and logic for updating the contents of the object data structure in response to communication from the server.

18. A data structure stored in a memory of a computer system having a mechanism for representing the data structure to at least two clients connected to the computer system, the data structure including:

5 a plurality of general entries including an entry identifying the at least two clients, wherein the modification of general entries is controlled by a central data structure server;

at least one variable entry, the variable entry being defined by one of the at least two clients, the variable entry including a name of an information item and a value of the information item.

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19. A collaboration system comprising:

means for associating an item of information with a shared object, the shared object including an access list identifying members in the collaboration system having access to the object;

15 means for updating an attribute of the shared object in response to a requests from one member in the access list; and

means for notifying all members in the access list associated with the shared object of the updated attribute of the shared object.

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20. A collaboration system comprising:

a plurality of objects, each object representing an item of information and having an access list identifying a group of members interested in the each object; and

a relation database for storing, for at least one object, at least one identifier

of at least one interested object, wherein the identifier is used to notify

members in the group of the at least one interested object of changes to the

item of information of the at least one object.

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21. A collaboration system comprising:

a first client device including a first storage device for storing a copy of at least one object to be shared with a second client device, the object having an attribute identifying information content associated with the object;

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means for maintaining consistency of the information content associated with the object, including means for broadcasting changes to the information content made by the first client to the second client and means for updating the information content in response to an update notification received from the second client.